

REMARKS

In this Amendment, Applicants amend claims 1 and 8 – 10 to more appropriately define the present invention. In accordance with the requirements of 37 C.F.R. § 1.121(c)(1), Applicants provide a marked-up version of the amended claims in an attached appendix designated “Version of Claims with Markings to Show Changes Made.” Applicants submit that the amendments contain no new matter, in accordance with the requirements of 37 C.F.R. § 1.121(f). Upon entry of this Amendment, claims 1 – 14 remain pending, with claims 11, 13, and 14 withdrawn from consideration as drawn to a nonelected invention, and claims 1 – 8, 10, and 12 under current examination.

Regarding the Office Action:

In the Office Action, the Examiner rejected claims 1 – 10 and 12 under 35 U.S.C. § 112, second paragraph, and indicated claims 1, 8, and 9 would be allowable if they incorporated an Examiner-proposed amendment. Applicants appreciate the Examiner’s thorough examination of this application, and in response have amended the application as follows:

Regarding the Rejection of Claims 1 – 10 and 12 under 35 U.S.C. § 112, 2nd ¶:

Regarding the rejection of claims 1 – 10 and 12 under 35 U.S.C. § 112, 2nd paragraph, Applicants have amended claims 1 and 8 – 10 to overcome the rejection.

Regarding claim 1, the Examiner stated, “In claim 1, line 8, it is unclear what is recited through use of “main”.” (Office Action, p. 2). In response, Applicants have deleted the word “main” from claim 1. Also regarding claim 1, the Examiner stated, “In line 8, it is unclear what is recited through use of “light absorbing end of silicon”.” *Id.* In response, Applicants have amended claim 1 to replace “light absorbing end of silicon” with “light absorption edge.”

Regarding claim 8, the Examiner stated, "In claim 8, it is confusing to recite that "metal nitride" is a metal." Id. In response, Applicants have amended claim 8 to change "metal nitride" to "the metal nitride film."

Regarding claim 9, the Examiner stated, "In claim 9, there is no antecedent basis for "unreacted part of the metal film"." Id. Applicants assume the Examiner alleged there is no definite article for "unreacted part." As such, Applicants have amended claim 9 to change "unreacted part" to "unreacted parts." Also regarding claim 9, the Examiner stated "In line 10, it is unclear what is recited through use of "main". In lines 10 and 11, it is unclear what is recited through use of "light absorbing end of silicon"." Id. In response, Applicants have made similar amendments as those described above regarding claim 1.

Regarding claim 10, the Examiner stated, "In claim 10, - - group consisting of - - should replace "group comprising". In line 2, "titanium" is misspelled." Id. In response Applicants have amended claim 10 to replace "comprising" with "consisting of," and to replace "titan" with "titanium."

Finally, Applicants have amended claims 1, 8, and 9 to include the following recitation: "wherein during the second heating process the silicide layer is converted from a mono-silicide to a di-silicide layer." The Examiner indicated that this amendment would render claims 1, 8, and 9 allowable and overcome the 35 U.S.C. § 112, second paragraph, rejection.

In summary, Applicants submit that these amendments clarify Applicants' claim language and thereby overcome the Examiner's 35 U.S.C. § 112, second paragraph, rejection.

Applicants therefore deem the rejection of claims 1 – 10 and 12 overcome. The pending claims fully comply with the requirements of 35 U.S.C. § 112, second paragraph, and Applicants accordingly request withdrawal of the rejection.

Conclusion:

In view of the foregoing remarks, Applicants request the Examiner's reconsideration of the application and submits that the rejection detailed above should be withdrawn. For the reasons articulated herein, Applicants submit that pending claims 1 – 8, 10 and 12 are in condition for allowance, and request a favorable action.

Should the Examiner dispute the patentability of the claims after consideration of this Amendment, Applicants encourage the Examiner to contact Applicants' undersigned representative by telephone to discuss any remaining issues or to resolve any misunderstandings.

Please grant any extensions of time under 37 C.F.R. § 1.136 required in entering this response. If there are any fees due under 37 C.F.R. § 1.16 or 1.17, which are not enclosed, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our deposit account 06-0916.

Respectfully submitted,

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APPENDIX TO AMENDMENT of July 18, 2003

“VERSION OF CLAIMS WITH MARKINGS TO SHOW CHANGES MADE”

AMENDMENTS TO THE CLAIMS:

Please amend claims 1 and 8 – 10 as follows:

1. (Amended) A method of manufacturing a semiconductor device, comprising:

forming an insulating film on a silicide layer formed at the surface of a silicon semiconductor substrate;

etching the insulating film to form a contact hole in which the silicide layer is exposed;

forming a metal nitride film on the bottom and side wall of the contact hole;

carrying out a first heating process at 600°C or lower on the substrate;

carrying out, during the first heating process, a second heating process for 10 msec or shorter with light whose [main] wavelength is shorter than a light [absorbing end] absorption edge of silicon;

forming a contact conductor in the contact hole after the second heating process; and

forming, on the insulating film, wiring that is electrically connected to the substrate through the contact conductor;

wherein during the second heating process the silicide layer is converted from a mono-silicide to a di-silicide layer.

8. (Amended) A method of manufacturing a semiconductor device, comprising:

forming an insulating film on a silicide layer formed at the surface of a silicon semiconductor substrate;

etching the insulating film to form a contact hole in which the silicide layer is exposed;

forming a metal nitride film on the bottom and sidewall of the contact hole;

carrying out a first heating process at 600°C or lower on the substrate;

carrying out, during the first heating process, a second heating process for 10 msec or shorter with light whose reflection coefficient for metal including the metal nitride film is 0.5 or lower;

forming a contact conductor in the contact hole after the second heating process; and

forming, on the insulating film, wiring that is electrically connected to the substrate through the contact conductor;

wherein during the second heating process the silicide layer is converted from a mono-silicide to a di-silicide layer.

9. (Amended) A method of manufacturing a semiconductor device, comprising:

forming a metal film on source/drain regions formed at the surface of a silicon semiconductor substrate and on a polysilicon gate electrode formed on a gate insulating film that is formed on the substrate between the source/drain regions;

carrying out a first heating process on the substrate, to change the metal film into a metal monosilicide film;

removing unreacted [part] parts of the metal film;

carrying out a second heating process at 600°C or lower on the substrate; and

carrying out, during the second heating process, a third heating process for 20 msec or shorter with light whose main wavelength is shorter than a light [absorbing end] absorption edge of silicon, to change the metal monosilicide film into a metal disilicide film;

wherein during the second heating process the silicide layer is converted from a mono-silicide to a di-silicide layer.

10. (Amended) The method as claimed in [claim9] claim 9, the metal film is selected from the group [comprising] consisting of cobalt (Co), [titan] titanium (Ti), nickel (Ni), hafnium (Hf), zirconium (Zr), palladium (Pd), or platinum (Pt).

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